IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant	:	Goddard et al. (as amended)
Appl. No.	:	10/036,063
Filed	:	December 26, 2001
For	:	ANTIBODIES TO POLYPEPTIDES THAT INDUCE CELL PROLIFERATION (as amended)
Examiner	:	Kolker, Daniel E.
Group Art Unit	:	1649

DECLARATION UNDER 37 CFR §1.131

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

We declare and state as follows:

1.   We are the inventors of the invention claimed in the above-captioned patent application.

2.   During the time period in which we participated in the events and activities described herein, we were employed by Genentech, Inc., the assignee of the above-captioned application.

3.   All of the events and activities described herein were performed by us personally, or by others at our direction as part of our duties as employees of Genentech, Inc.

4.   The claimed antibodies and the proteins to which the claimed antibodies bind were conceived and reduced to practice in the United States prior to November 10, 1999 as described below.

5.   Prior to November 10, 1999, we conceived of the invention claimed in the above-captioned patent application. This is demonstrated by the disclosure set forth in U.S. Provisional Patent Application No. 60/130,359, filed April 21, 1999, which describes the nucleic acid of SEQ ID NO: 56, the polypeptide of SEQ ID NO: 57, and the claimed antibodies to SEQ ID NO: 57. In addition, the attached sequence printout (Exhibit A), which was generated prior to November 10, 1999, shows the complete sequence of the nucleic acid having the sequence of SEQ ID NO: 56. The attached printout also shows the complete sequence of the polypeptide which has the sequence of SEQ ID NO: 57, to which the claimed antibodies bind. As evidenced by the provisional application and the sequence printout, we were in possession of the complete nucleic acid sequence, the complete amino acid sequences, and antibodies that bind to SEQ ID NO: 57 prior to April 21, 1999.

6.   The date deleted from Exhibit A is prior to November 10, 1999. This date was redacted pursuant to M.P.E.P. § 715.07. The date that remains is the date the report was printed, April 28, 2005.

7.   After the initial experiments resulting in the sequences listed in the attached printout, we diligently reduced to practice the polypeptides to which the claimed antibodies bind by working to express and purify the encoded polypeptide and to run it systematically through many assays. The cDNA was deposited with the American Type Culture Collection (ATCC) on April 20, 1999 and assigned ATCC no. 203948. The protein of interest was assigned a "protein inventory number" (*e.g.*, PIN1205-1), and this protein is the polypeptide having the sequence of SEQ ID NO:57, and is encoded by SEQ ID NO: 56.

8.   Exhibit B shows that the protein lot designated PIN1205-1 was delivered to James Pan on a date prior to November 10, 1999 in order to perform assay ASY92, called "Mouse Mesangial Cell proliferation Assay." Also, as shown in Exhibit B, the assay was completed on a date prior to November 10, 1999. Exhibit B also shows that the tested polypeptides tested positive ("All Positives"), thereby confirming the ability of the encoded polypeptide to induce mesangial cell proliferation. Thus, SEQ ID NO: 57 and antibodies that bind thereto were reduced to practice on a date prior to November 10, 1999.

9.   The dates deleted from Exhibit B all are prior to November 10, 1999. These dates were redacted pursuant to M.P.E.P. § 715.07. The date that remains is the date the report was printed, April 28, 2005.

11.   We hereby declare that all statements made herein of our own knowledge are true and that all statements made on information or belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful statements may jeopardize the validity of the application or any patent issued thereon.

By: _A. Goddard_____   Date:_6/25/07_____
Audrey Goddard

By: _____   Date:_____
Paul J. Godowski

By: _____   Date:_____
Austin L. Gurney

By: _____   Date:_____
James Pan

By: _____   Date:_____
Colin K. Watanabe

By: _____   Date:_____
William I. Wood

3905026
062007

11.   We hereby declare that all statements made herein of our own knowledge are true and that all statements made on information or belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful statements may jeopardize the validity of the application or any patent issued thereon.

By: _____   Date: _____
        Audrey Goddard

By: _____   Date: __6|25|0'7_____
        Paul J. Godowski

By: _____   Date: _____
        Austin L. Gurney

By: _____   Date: _____
        James Pan

By: _____   Date: _____
        Colin K. Watanabe

By: _____   Date: _____
        William I. Wood

3905026
062007

-3-

11.   We hereby declare that all statements made herein of our own knowledge are true and that all statements made on information or belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful statements may jeopardize the validity of the application or any patent issued thereon.

By: _____   Date:_____
       Audrey Goddard

By: _____   Date:_____
       Paul J. Godowski

By: _____   Date:___7/7/07_____
       Austin L. Gurney

By: _____   Date:_____
       James Pan

By: _____   Date:_____
       Colin K. Watanabe

By: _____   Date:_____
       William I. Wood

3905026
062007

-3-

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By: _____   Date:_____

     Audrey Goddard

By: _____   Date:_____

     Paul J. Godowski

By: _____   Date:_____

     Austin L. Gurney

By: _____   Date:_____ June 22/07 _____

     James Pan

By: _____   Date:_____

     Colin K. Watanabe
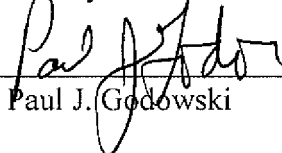
By: _____   Date:_____

     William I. Wood

3905026
062007

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By: _____   Date:_____
      Audrey Goddard

By: _____   Date:_____
      Paul J. Godowski

By: _____   Date:_____
      Austin L. Gurney

By: _____   Date:_____
      James Pan

By: _____   Date:__6/27/2007_____
      Colin K. Watanabe

By: _____   Date:_____
      William I. Wood

3905026
062007

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By: _____   Date:_____
         Audrey Goddard

By: _____   Date:_____
         Paul J. Godowski

By: _____   Date:_____
         Austin L. Gurney

By: _____   Date:_____
         James Pan

By: _____   Date:_____
         Colin K. Watanabe

By: _____   Date:___6/25/07_____
         William I. Wood

3905026
062007

EXHIBIT A

>Thursday, April 28, 2005
>DNA92234 [Full]
>887 Sites [All Sites]   [DNA92234], sheldens
>
> Lib309
>Sequence confirmed by phredphrap

```
                                     thaI
                          nlaIII      snaBI
                          sphI  fnuDII/mvnI           mnlI
                          nspHI bstUI talI            taqI
                    talI  nspI  bsh1236I              xhoI
                    maeII/hpyCH4IV bsiWI/splI    tsp509I[M.ecoRI-]
            aluI  hinlI/acyI cac8I  bsaAI        ecoRI      tliI
  tsp45I    sapI  ahaII/bsaHI mluI rsaI          hpy188I    smlI
  maeIII    mboII aatII  cac8I aflIII maeII/hpyCH4IV  paeR7I  hpy188I aciI       bpmI/g
  hphI sfcI earI/ksp632I hpy99I hpyCH4V csp6I aluI apoI  avaI[M.taqI-]  mnlI  fnu4HI/bsoFI hpy18
  1 TAGGTGACAC TATAGAAGAG CTATGACGTC GCATGACACGC CTACGTAAGC TCGGAATTCG GCTCGAGGAA TGAATACCTC CGAAGCCGCT TTGTTCTCCA
    ATCCACTGTG ATATCTTCTC GATACTGCAG CGTACGTGCG CATGCATTCG AGCCTTAAGC CGAGCTCCTT ACTTATGGAG GCTTCGGGCGA AACAAGAGGT
                                                                                          ^insert starts here
```

```
                                                    scrFI[M.hpaII-]
                                                    nciI
                                                    mspI
                                                    hpaII                              mnlI
                                                    dsaV                               bslI
                                 bpuAI  bssKI                bsp1286         tsp45I
                                 bbsI bslI    bsmFI taiI     bmyI         tru9I hphI
          aluI        mnlI mboII  bsaJI   maeII/hpyCH4IV                 msei maeIII           nla
101 GATGTGAATA GCTCCACTAT ACCAGCCTCG TCTTCCTTCC GGGGGACAAC GTGGGTCAGG GCACAGAGAG ATATTAATG TCACCCTCTT GGGGCTTTCA
    CTACACTTAT CGAGGTGATA TGGTCGGAGC AGAAGGAAGG CCCCCTGTTG CACCCAGTCC CGTGTCTCTC TATAAATTAC AGTGGGAGAA CCCCGAAAGT

                                        sau3AI
                                        mboI/ndeII[dam-]
                                        dpnII[dam-]
                                        dpnI[dam+]
                                        alwI[dam-]
                                                        nlaIV
                                                        bstYI/xhoII           hgaI
                                                        bamHI bslI            tseI
                    mnlI               alwI[dam-]  hpy188III      fnu4HI/bso
    pleI            rmaI        hpy188I bstXI      bslI avaI      bbvI bsmFI
    mlyI            maeI        eco57I  bpmI/gsuI[dcm-]
    hinfI           bfaI
    bsmFI mnlI
201 TGGGACTCCC TCTGCCACAT TTTTTGGAGG TTGGGAAAGT TGCTAGAGGC TTCAGAACTC CAGCCTAATG GATCCCAAAC TCGGGAGAAT GGCTGCGTCC
    ACCCTGAGGG AGACGGTGTA AAAAACCTCC AACCCTTTCA ACGATCTCCG AAGTCTTGAG GTCGGATTAC CTAGGGTTTG AGCCCTCTTA CCGACGCAGG

                                                         M   D   P   K   L   G   R   M   A   A   S
  1                                                      ^MET
```

```
                              fnu4HI/bsoFI
                              aciI
                    tseI
                    mwoI   thaI nlaIII
              tseI  mwoI   nspHI                        haeII
              mwoI  fnu4HI/bsoFI                        mspI
              fnu4HI/bsoFI     fnuDII/mvnI              scrFI[M.hpaII-]
              bbvI  bbvI       bstUI[M.hhaI-]           nciI
        tseI  tseI            bsh1236I                  dsaV hinPI          bpuAI           ms
        mwoI  fnu4HI/bsoFI hinPI nspI      hphI         mwoI hpaII          bbsI:    rsaI   mnlI
  mwoI  fnu4HI/bsoFI           mnlI        aciI bssKI   xmnI mboII          csp6I          ecoNI
  cac8I bbvI bbvI  bpmI/gsuI[dcm-].      bseRI  mnlI bslI bsaJI hhaI/cfoI  asp700  bsrI    bslI

301 CTGCTGGCTG GCTGCTGCT GCGGGCATGT TCTCCTCACC CTCCCCGCCC CCGGGCCTGT TAGAGAAAGT CTTCCAGTAC ATTGACCTCC
    GACGACCGAC ACGACGACGA CGCGCCGTACA AGAGGAGTGG GAGGGGCGGG GGCCGGGACA ATCTCTTTCA GAAGGTCATG TAACTGGAGG

 12 L  L  A  V  L  L  L  L  L  L  E  R  G  M  F  S  S  P  S  P  P  P  A  L  L  E  K  V  F  Q  Y  I  D  L  H


                                                                       mboII
                                                                       earI/ksp632I
                                                                       sapI
                                                                       aluI
                                                                       sstI
                                                                       sacI
                                              tth111I/aspI             hgiAI/aspHI[M.aluI-]
                                              pleI                     ecl136II
                          haeIII/palI         pflFI                    bsp1286I[M.aluI-]
            apoI  alwNI[dcm-]  mscI/balI       mlyI                    bsiHKAI hpy188I
    foxI tsp509I alw26I/bsmAI  eaeI  taqI    .hinfI           hpy188I bmyI eco57I       ea
    bstF5I    hpyCH4V         cfrI  hpy188III                  mnlI  eco57I  banII[M.aluI-]   cf
    hpy188III bsgI hgaI eco57I

401 ATCAGGATGA ATTTGTGCAG ACGCTGAAGG AGTGGGTGGC CATCGAGAGC GACTCTGTCC AGCCTGTGCC TCGCTTCAGA CAAGAGCTCT TCAGAATGAT
    TAGTCCTACT TAAACACGTC TGCGACTTCC TCACCCACCG GTAGCTCTCG CTGAGACAGG TCGGACACGG AGCGAAGTCT GTTCTCGAGA AGTCTTACTA

 46 Q  D  E  F  V  Q  T  L  K  E  W  V  A  I  E  S  D  S  V  Q  P  V  P  R  F  R  Q  E  L  F  R  M  M

                              GSeqEdit, DNA92234 [Full], page 3
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```
                                                                  tseI
          scrFI[dcm-]
          pspGI sau96I[M.haeIII-]
          mvaI pspOMI/bsp120I
          ecoRII[dcm-]
          dsaV[dcm-]
          bstNI nlaIV
          bssKI[dcm-]
                    hinPI   bsp1286[M.haeIII-]         fnu4HI/bsoFI
                    hhaI/cfoI sfiI                     aluI
                    tseI bsaJI bmyI                    pvuII[M.H1-]
                    fnu4HI/bsoFI sau96I[M.haeIII-]     tseI
                    bbvI apyI[dcm+]                    fnu4HI/bsoFI
                                                       sau96I alwNI[dcm-]          mboII

       mwoI

dsaI tseI       hpyCH4V      banII[M.haeIII-]          sau96I alwNI[dcm-]          bpuAI
btgI/bstDSI     sfcI haeII      apaI      mnlI          ppuMI ddeI mspAlI/nspBII   bbsI
bsaJI   aciI   tseI alwNI[dcm-] haeIII/palI bsaJI      nlaIV bspCNI bbvI           pleI
mwoI fnu4HI/bsoFI pstI[M.H1-]   nlaIV      haeIII/palI  ecoO109I/draII             mlyI
bceAI bbvI       fnu4HI/bsoFI   ecoO109I/draII         nlaIII mnlI bbvI            hinfI
haeIII/palI     bbvI alw26I/bsmAI bglI[M.haeIII-]      pshAI avaII alw26I/bsmAI    hpy188I    mnlI
501 GGCCGTGGCT GCGGACACGC TGCAGCGCCT GGGGGCCCGT GTGGCCCTCGG TGGACATGGG TCCTCAGCAG CTGCCCGATG GTCAGAGTCT TCCAATACCT
    CCGGCACCGA CGCCTGTGCG ACGTCGCGGA CCCCCGGGCA CACCGGGAGCC ACCTGTACCC AGGAGTCGTC GACGGGCTAC CAGTCTCAGA AGGTTATGGA
79. A   V   A   A   D   T   L   Q   R   L   G   A   R   V   A   S   V   D   M   G   P   Q   Q   L   P   D   G   Q   S   L   P   I   P
```

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                                                                                          scrFI[M.hpaII-]

                                                         tseI                             nciI
                                             haeIII/palI                fnu4HI/bsoFI      mspI
                                    draIII                      bsgI    cac8I             hpaII
            eaeI[dcm-]              mwoI                         taiI    bbvI              dsaV
            scrFI[dcm-]    bslI     haeIII/palI                 maeII/hpyCH4IV            bssKI
            pspGI          sau3AI   bstAPI                       btrI    hpyCH4V           bsaJI
            mvaI                    mboI/ndeII[dam-] bst4CI/hpyCH4III
            ecoRII[dcm-]           dpnII[dam-]       bstAPI
            dsaV[dcm-]             dpnI[dam+]        nlaIV      eaeI
            bstNI bslI            alwI[dam-]         banI       cfrI               sau3AI    mwoI
            bssKI[dcm-]                                         mwoI   bceAI      mboI/ndeII[dam-]      hl
            apyI[dcm+]                                                                      dpnII[dam-] dpnII[dam-] hh
            fokI cfrI bsrI                                                        bslI      dpnI[dam+]  dpnI[dam+]  hae
            bstF5I haeIII/palI                                                    sau96I[M.haeIII-] alwI[dam-]
```

601 CCCGTCATCC TGGCCGAACT GGGGAGCGAT CCCACGAAAG GCACCGTGTG CTTCTACGGC CACTTGGACG TGCAGCCTGC TGACCGGGGC GATGGGTGGC
    GGGCAGTAGG ACCGGCTTGA CCCCTCGCTA GGGTGCTTTC CGTGGCACAC GAAGATGCCG GTGAACCTGC ACGTCGGACG ACTGGCCCCG CTACCCACCG

112 P V I L A E L G S D P T K G P V C F Y G H L D V Q P A D R G D G W L

```
            sau96I                   mnlI    mcrI
            nlaIV          accI      bseRI   bsiEI              haeIII/palI
            avaII          mnlI                                 ecoO109I/draII
```

701 TCACGGACCC CTATGTGCTG ACGGAGGTAG ACGGGAAACT TTATGGACGA GGAGCGGACCG ACAACAAAGG CCCTGTCTTG GCTTGGATCA ATGCTGTGAG
    AGTGCCTGGG GATACACGAC TGCCTCCATC TGCCCCTTTGA AATACCTGCT CCTCGCTGGC TGTTGTTTCC GGGACAGAAC CGAACCTAGT TACGACACTC

146 T D P Y V L T E V D G K L Y G R G A T D N K G P V L A W I N A V S

```
                                                                              mnlI
scrFI[dcm-]                                                                   bpmI/gsuI[dcm-]
pspGI                                                                         scrFI[dcm-]
mvaI    sau3AI                                                                pspGI
ecoRII[dcm-]                                                                  mvaI
dsaV[dcm-] mboI/ndeII[dam-]                                                   ecoRII[dcm-]
bstNI     dpnII[dam-]                                                         dsaV[dcm-]
bsp1286   bstYI/xhoII                                                         bstNI
bmyI bssKI[dcm-] mboII                             fokI  mboII cac8I          bssKI[dcm-]
hpy188I apyI[dcm+] dpnI[dam+]        tsp509I   bstF5I  mnlI                    apyI[dcm+]
eco57I bsaJI  bglII                           apoI    mnlI   earI/ksp632I     bsaJI
mwoI banII bpmI/gsuI[dcm-]

801 CGCCTTCAGA GCCCTGGAGC AAGATCTTCC TGTGAATATC AAATTCATCA TTGAGGGGAT GGCTCTGTTG CCCTGGAGGA ACTTGTGGAA
    GCGGAAGTCT CGGGACCTCG TTCTAGAAGG ACACTTATAG TTTAAGTAGT AACTCCCCTA CCGAGACAAC GGGACCTCCT TGAACACCTT

179  A  F  R   A  L  E  Q   D  L  P   V  N  I   K  F  I  I   E  G  M   E  E  A   G  S  V  A   L  E  E   L  V  E
```

scrFI[
nciI
mspI
hpaII
dsaV
bssKI
bsaJI
xmaI/ps
smaI
scrFI[M
nciI
dsaV
bssKI
bsaJI
avaI[M.

sau3AI
mboI/ndeII[dam-]
dpnII[dam-]
dpnI[dam+]
alwI[dam-]   cac8I
                              nlaIV

                    hpy188I
              tsp509I

        tfiI
sau96I mboII
avaII hinfI

```
901 AAAGAAAAGG ACCGATTCTT CTCTGGTGTG GACTACATTG TAACCTGTGG ATCAGCCAAA GGAAGCCAGC AATCACTTAT GGAACCCGGG
    TTTCTTTTCC TGGCTAAGAA GAGACCACAC CTGATGTAAC ATTGGACACC TAGTCGGTTT CCTTCGGTCG TTAGTGAATA CCTTGGGCCC
212 K  E  K  D  R  F  F  S  G  V  D  Y  I  V  I  S  D  N  L  W  I  S  Q  R  K  P  A  I  T  Y  G  T  R  G
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```
                                                                    sau3AI        sap
                                                                    mboI/ndeII[da
                         scrFI[dcm-]                                 dpnII[dam-]
                         pspGI                                       dpnII[dam+] ea
                         mvaI
                         ecoRII[dcm-]
                         dsaV[dcm-]
                         bstNI                          nlaIII
                         bssKI[dcm-]                    fokI    rcaI
                                      bsmAI    hpy188III bstF5I  hpy188III
                                      bsaI     ddeI nlaIV        sfaNI   bspHI
                             hphI     apyI[dcm+] bspCNI
              nlaIII mnlI   hpyCH4V
      aluI

1001 GGAACACAGCTA CTTCATGGTG GAGGTGAAAT GCAGAGACCA GGATTTTCAC TCAGGAACCT TTGGTGGCAT CCTTCATGAA CCAATGGCTG ATCTGGTTGC
     CCTTGTGTCGAT GAAGTACCAC CTCCACTTTA CGTCTCTGGT CCTAAAAGTG AGTCCTTGGA AACCACCGTA GGAAGTACTT GGTTACCGAC TAGACCAACG

246   N  S  Y    F  M  V     E  V  K    C  R  D  Q   D  F  H     S  G  T  F    G  G  I    L  H  E  P    M  A  D    L  V  A
```

scrFI[dcm-]
pspGI
mvaI
ecoRII[dcm-]
dsaV[dcm-]
bstNI
bssKI[dcm-]
sau96I[dcm-]
nlaIV
avaII[dcm-]
scrFI[dcm-]
pspGI   apyI[dcm+]
mvaI bsmFI
ecoRII[dcm-]
dsaV[dcm-]
bstNI bsaJI   mnlI
bssKI[dcm-] tfiI   xmnI nlaIV   mboII
apyI[dcm+] hinfI   asp700 mnlI earI/ksp632I

accI
scrFI[dcm-]
pspGI pleI
mvaI mlyI
ecoRII[dcm-]
dsaV[dcm-]
bstNI hinfI
bssKI[dcm-]
mboII   apyI[dcm+]

1101 TCTTCTCGGT AGCCTGGTAG ACTCGTCTGG TCATATCCTG GTCCCTGGAA TCTATGATGA AGTGGTTCCT CTTACAGAAG AGGAAATAAA TACATACAAA
     AGAAGAGCCA TCGGACCATC TGAGCAGACC AGTATAGGAC CAGGGACCTT AGATACTACT TCACCAAGGA GAATGTCTTC TCCTTTATTT ATGTATGTTT

279   L L G   S L V D   S S G   H I L   V P G I   Y D E   V V P   L T E E   I N   T Y K

GSeqEdit, DNA92234 [Full], page 9

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                                                                                    rsaI
                                                                                    csp6I
                                                                                    nlaIV
                                                                                    kpnI
                                                                                    banI
                                                                     rmaI           asp718
                                                                     dsaV           bpmI/gsuI[dcm]
                                                        scrFI[M.hpaII-]   bssKI      hpy188III
                                                        nciI                         mnlI  tfiI       acc65I
                            rmaI                        mspI                                          hpyCH4V
            maeI            rmaI                        hpaII    fnu4HI/bsoFI  tsp509I       ddeI bseRI hinfI   mnlI
            xbaI  hpy188III  mboII    mspI     tseI    bssKI                                                    
foki hpy188III  mboII        hpaII                     dsaV                                                    
bstF5I bfaI       bfaI       bsaWI    bbvI    apoI     taqI
1201 GCCATCCATC TAGACCTAGA AGAATACCGG AATAGCAGCC GGGTTGAGAA ATTTCTGTTC GATACTAAGG AGGAGATTCT AATGCACCTC TGGAGGTACC
     CGGTAGGTAG ATCTGGATCT TCTTATGGCC TTATCGTCGG CCCAACTCTT TAAAGACAAG CTATGATTCC TCCTCTAAGA TTACGTGGAG ACCTCCATGG
312 A  I  H  L  D  L  E  E  Y  R  N  S  S  R  V  E  K  F  L  F  D  T  K  E  E  I  L  M  H  L  W  R  Y  P

                                                        haeIII/palI
                                                        eaeI[dcm-]
                            thaI                        cfrI
                            fnuDII/mvnI   scrFI[dcm-]   scrFI[dcm-]
                            .hinPI        pspGI         pspGI
                            mnlI bstUI[M.hhaI-] mvaI    mvaI
                            sau3AI  hhaI/cfoI  ecoRII[dcm-]  ecoRII[dcm-]
                  mboI/ndeII[dam-][M.taqI-]             dsaV[dcm-]
            dpnII[dam-]              dsaV[dcm-]         bstNI              tsp509I        bsm
            dpnI[dam+]               bstNI              bssKI[dcm-]        apoI           rmaI
       alwI[dam-] bsh1236I           bssKI[dcm-]        apyI[dcm+]         xmnI           maeI
       nlaIII  taqI[dam-]            apyI[dcm-]  bst4CI/hpyCH4III         asp700          bfaI
1301 CATCTCTTTC TATTCATGGG ATCGAGGGCG CGTTTGATGA GCCTGGAACT AAAACAGTCA TACCTGGCCG AGTTATAGGA AAATTTCAA TCCGTCTAGT
     GTAGAGAAAG ATAAGTACCC TAGCTCCCGC GCAAACTACT CGGACCTTGA TTTTGTCAGT ATGGACCGGC TCAATATCCT TTTAAAAGTT AGGCAGATCA
346 S  L  S  I  H  G  I  E  G  A  F  D  E  P  G  T  K  T  V  I  P  G  R  V  I  G  K  F  S  I  R  L  V

                              GSeqEdit, DNA92234 [Full], page 10
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```
                                                                        pl
                                                                        ml
                          tsp45I                                        hi
         nlaIII           maeIII            mboII              xmnI
                mslI      hphI              hpy188III     asp700    bstXI      nlaII
         mnlI mslI  aciI

1401 CCCTCACATG AATGTGTCTG CGGTGGAAAA ACAGGTGACA CGACATCCTG AAGAATGTGTT CTCCAAAAGA AATAGTCCA ACAAGATGGT TGTTTCCATG
     GGGAGTGTAC TTACACAGAC GCCACCTTTT TGTCCACTGT GCTGTAGAAC TTCTTACACAA GAGGTTTTCT TTATCAAGGT TGTTCTACCA ACAAAGGTAC

379  P  H  M  N  V  S  A  V  E  K  Q  V  T  R  H  L  E  D  V  F  S  K  R  N  S  S  N  K  M  V  V  S  M
```

```
                                                                           tspRI
                                                        hpy188I                         sau
                                        mwoI            sau3AI  bst4CI/hpyCH4III         mbo
                              dsaI               tseI           mboI/ndeII[dam-]         dpn
         rmaI                 btgI/bstDSI  sspI          fnu4HI/bsoFI   dpnII[dam-]      dpn
         maeI                 bsaJI        hpyCH4V   bsrI             dpnI[dam+]         alw
         bfaI

1501 ACTCTAGGAC TACACCCGTG GATTGCAAAT ATTGATGACA CCCAGTATCT CGGCAGCAAAA AGAGCGATCA GAACAGTGTT TGGAACAGAA CCAGATATGA
     TGAGATCCTG ATGTGGGCAC CTAACGTTTA TAACTACTGT GGGTCATAGA GCCGTCGTTTT TCTCGCTAGT CTTGTCACAA ACCTTGTCTT GGTCTATACT

412  T  L  G  L  H  P  W  I  A  N  I  D  D  T  Q  Y  L  A  A  K  R  A  I  R  T  V  F  G  T  E  P  D  M  I
```

```
        sau3AI
        mboI/ndeII[dam-]
        dpnII[dam-]                    sau3AI
        fokI dpnI[dam+]
        bstF5I                         scrFI[dcm-]
        scrFI[M.hpaII-]                pspGI mboI/ndeII[dam-]
        nciI  alwI[dam-]               mvaI  dpnII[dam-]
        mspI  nlaIV                    ecoRII[dcm-]
        hpaII bstYI/xhoII              dsaV[dcm-]
        dsaV  bamHI                    bstNI dpnI[dam+]        mspAII/nspBII
        bssKI alwI[dam-]  tsp509I      bssKI[dcm-]             tsp509I
                          munI/mfeI    apyI[dcm+]     mwoI    aciI  aluI

1601 TCCGGGATGG ATCCACCATT CCAATTGCCA AAATGTTCCA GGAGATCGTC CACAAGAGCG TGGTGCTAAT TCCGCTGGGA GCTGTTGATG ATGGAGAACA
     AGGCCCTACC TAGGTGGTAA GGTTAACGGT TTTACAAGGT CCTCTAGCAG GTGTTCTCGC ACCACGATTA AGGCGACCCT CGACAACTAC TACCTCTTGT

 446  R   D   G   S   T   I   P   I   A   K   M   F   Q   E   I   V   H   K   S   V   V   L   I   P   L   G   A   V   D   D   G   E   H

                                                                       tru9I
                                                            tseI       aluI  mseI
                                                            fnu4HI/bsoFI     sau96I[M.haeIII-]
                                               nlaIV        bbvI      haeIII/palI aseI/asnI/vspI
                                               mnlI    tsp509I        ddeI

1701 TTCGCAGAAT GAGAAAATCA ACAGGTGGAA CTACATAGAG GGAACCAAAT TATTTGCTGC CTTTTTCTTA GAGATGGCCC AGCTCCATTA ATCACAAGAA
     AAGCGTCTTA CTCTTTTAGT TGTCCACCTT GATGTATCTC CCTTGGTTTA ATAAACGACG GAAAAAGAAT CTCTACCGGG TCGAGGTAAT TAGTGTTCTT

 479  S   Q   N   E   K   I   N   R   W   N   Y   I   E   G   T   K   L   F   A   A   F   F   L   E   M   A   Q   L   H   Q
```

```
                    sau3AI
                    mboI/ndeII[dam-]
                    dpnII[dam-]
                    dpnI[dam+]
          hpy188I                                          rmaI                    tsp509I  rmaI
          sau3AI   tspRI                                   maeI                    apoI     maeI  rsaI
    hpy188I alwI[dam-]                                     bslI           hpy188III    bfaI  csp6I
    rmaI    mboI/ndeII[dam-]           hphI        bslI
    maeI    dpnII[dam-]     tfiI  mnlI      fokI bfaI  fokI
    bfaI    dpnI[dam+]      hinfI[M.hphI-]  bstF5I    bstF5I

1801 CCTTCTAGTC TGATCTGATC CACTGACAGA TTCACCTCCC CCACATCCCT AGACAGGGAT GGAATGTAAA TATCCAGAGA ATTTGGGTCT AGTATAGTAC
     GGAAGATCAG ACTAGACTAG GTGACTGTCT AAGTGGAGGG GGTGTAGGGA TCTGTCCCTA CCTTACATTT ATAGGTCTCT TAAACCCAGA TCATATCATG

                                                                                        sau96I
                                  sau3AI                                                 nlaIV
                                  mboI/ndeII[dam-]                                       avaII      hpyCH4V
                                  dpnII[dam-]                                            ppuMI  bsgI
                                  dpnI[dam+]                                             ecoO109I/draII
                         tru9I                                                          tru9I  tspRI
                         mseI         hpy188III                                         mseI bsmFI btsI
                    ahaIII/draI  ecoRV  alwI[dam-]  sspI

1901 ATTTTCCCTT CCATTTAAAA TGTCTTGGGA TATCTGGATC AGTAATAAAA TATTTCAAAG GCACAGATGT TGGAAATGGT TTTAAGGTCC CCACTGCACA
     TAAAAGGGAA GGTAAATTTT ACAGAACCCT ATAGACCTAG TCATTATTTT ATAAAGTTTC CGTGTCTACA ACCTTTACCA AATTCCAGGG GGTGACGTGT
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GSeqEdit, DNA92234 [Full], page 13

```
                                                          scrFI[dcm-]
                                                          pspGI
                                                          mvaI
                                                          ecoRII[dcm-]
                                 tseI                     dsaV[dcm-]
                       cac8I                              bstNI
                       tseI      fnu4HI/bsoFI             bssKI[dcm-]
                       fnu4HI/bsoFI                       apyI[dcm+]
          smlI         bbvI      bbvI              bslI        tfiI
          mnlI         aluI      hpyCH4V           hpyCH4V bsaJI  hinfI

2001 CCTTCCTCCAA GTCATAGCTG CTTGCAGCAA CTTGATTTCC CCAAGTCCTG TGCAATAGCC CCAGGATTGG AATCCTTCCA ACCTTTTAGC ATATCTCCAA
     GGAAGGAGTT CAGTATCGAC GAACGTCGTT GAACTAAAGG GGTTCAGGAC ACGTTATCGG GGTCCTAACC TTAGGAAGGT TGGAAAATCG TATAGAGGTT

                                                  sau96I         tsp45I
                                                  avaII      bssSI
                                                  ppuMI      hgiAI/aspHI           sau3AI
                                                  ecoO109I/draII hpy188III
                              mspI       rmaI     bsp1286                 mboI/ndeII[dam-]
          tsp509I             hpaII      maeI     smlI bsiHKAI       fokI dpnII[dam-]
          hpyCH4V             bsaWI      bfaI mnlI bmyI maeIII       bstF5I dpnI[dam+]

2101 CCTTGCAATT TGATTGGCAT AATCACTCCG GTTTGCTTTC TAGGTCCTCA AGTGCTCGTG ACACATAATC ATTCCATCCA ATGATCGGCCT TTGCTTTACC
     GGAACGTTAA ACTAACCGTA TTAGTGAGGC CAAACGAAAG ATCCAGGAGT TCACGAGCAC TGTGTATTAG TAAGGTAGGT TACTAGCCGGA AACGAAATGG

                    tru9I
          mseI      bsmAI
          aseI/asnI/vspI bsaI  tspRI

2201 ACTCCTTTCCT TTTATCTTAT TAATAAAAAT GTTGGTCTCC ACCACTGNCT CCCAAAAAAA AAAAAAAAAA AAAAAAAAAA AAAAAAAAAA AAAAAAAAAA
     TGAGAAAGGA AAATAGAATA ATTATTTTTA CAACCAGAGG TGGTGACNGA GGGTTTTTTT TTTTTTTTTT TTTTTTTTTT TTTTTTTTTT TTTTTTTTTT
```

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                                              scrFI[M.hpaII-]
                                              nciI
                                              mspI
                                              hpaII
                                              dsaV
                                              bssKI              sau96I rsaI
                                              xmaI/pspAI         rsrII/cspI
                                              smaI       mroI    nlaIV
                      aciI                    scrFI[M.hpaII-] cpoI   kpnI  hpyCH4V
              fnu4HI/bsoFI        taqI nciI            hpy188III csp6I
              haeIII/palI      sstI  salI  dsaV          bspMII banI sfcI
       mcrI             sacI  hincII/hindIII[M.taqI-] avaII[M.hpaII-]
       eagI/xmaIII/eclXI aluI accI[M.taqI-]   tru9I mspI     asp718
       eaeI           hgiAI/aspHI[M.aluI-] mseI bspEI cfr10I/bsrFI
       cfrI    rmaI  ecl136II   bssKI aseI/asnI/vspI acc65I cac8I
       bsiEI   maeI  bspi286[M.aluI-] xmnI tsp509I bsaWI  pstI
       notI    bfaI  bsiHKAI      bsaJI tsp509I bsaWI ageI  sse8387I
       fnu4HI/bsoFI  bmyI hpy99I avaII[M.hpaII-] hpaII mspI bspMI    rsaI
       aciI    speI  banII[M.aluI-] asp700  accIII hpaII sbfI    csp6I aluI  sf

2301 AAAAAAAAAAA AAAAAAAAA AAAGGGCGGC CGCCGACTAG TGAGCTCGTC GACCCGGGAA TTAATTCCGG ACCGGTACCT GCAGGCGTAC CAGCTTTCCC
     TTTTTTTTTT TTTTTTTTTT TTTCCCGCCG GCGGCTGATC ACTCGAGCAG CTGGGCCCTT AATTAAGGCC TGGCCATGGA CGTCCGCATG GTCGAAAGGG


      pleI
      mlyI
      hinfI         aluI
2401 TATAGTGAGT CGTATTAGAG CTTGG
     ATATCACTCA GCATAATCTC GAACC
```

GSeqEdit, DNA92234 [Full], page 15

> length: 2425

aatII (GACGTC):   25
acc65I (GGTACC):   1295 2374
accI (GTMKAC):   727 1117 2348
accIII (TCCGGA):   2366
aclI (CCGC):   86 332 355 511 1420 1672 2326 2330
acyI (GRCGYC):   25
aflIII (ACRYGT):   37
ageI (ACCGGT):   2371
ahaII (GRCGYC):   25
ahaIII (TTTAAA):   1914
aluI (AGCT):   19 48 110 485 569 1006 1680 1781 2016 2343 2392 2419
alw26I (CAGNNNCTG):   418 523 565
alwI (GGATCNNNN):   270 271 628 785 959 1319 1599 1609 1610 1817 1936
alwNI (CAGNNNCTG):   418 523 565
apaI (GGGCCC):   533
apoI (RAATTY):   54 409 841 1249 1381 1879
apyI (CCWGG):   528 609 813 882 1038 1113 1137 1144 1342 1363 1638 2061
aseI (ATTAAT):   1787 2219 2360
asnI (ATTAAT):   1787 2219 2360
asp700 (GAANNNNTTC):   375 1159 1379 1469 2358
asp718 (GGTACC):   1295 2374
aspHI (GWGCWC):   484 2152 2342
aspI (GACNNNGTC):   451
avaI (CYCGRG):   62 280 995 2353
avaII (GGWCC):   559 705 909 1140 1985 2143 2369
balI (TGGCCA):   437
bamHI (GGATCC):   270 1609
banI (GGYRCC):   640 1295 2374

GSeqEdit, DNA92234 [Full], page 16

banII (GRGCYC): 484 533 809 2342

bbsI (GAAGACNNNNNN): 130 379 587

bbvI (GCAGC): 292 312 315 318 321 508 519 522 567 570 672 1235 1552 1756 2017 2024

bceAI (ACGGCNNNNNNNNNNNN): 502 656

bfaI (CTAG): 243 1210 1216 1396 1504 1805 1849 1889 2140 2337

bglII (GCCNNNNNGGC): 535

bglIII (AGATCT): 822

bmyI (GDGCHC): 159 484 533 809 2152 2342

bpmI (CTGGAG): 96 258 325 814 883 1290

bpuAI (GAAGACNNNNNN): 130 379 587

bsaAI (YACGTR): 42

bsaHI (GRCGYC): 25

bsaI (GGTCTCNNNNN): 1034 2234

bsaJI (CCNNGG): 139 359 503 528 545 684 812 881 995 996 1143 1516 2060 2353

bsaWI (WCCGGW): 1226 2127 2366 2371

bseRI (GAGGAGNNNNNNNNNN): 342 749 1270

bsgI (GTGCAG): 415 670 1994

bsh1236I (CGCG): 38 331 1329

bsiEI (CGRYCG): 755 2327

bsiHKAI (GWGCWC): 484 2152 2342

bsiWI (CGTACG): 40

bslI (CCNNNNNNNGG): 135 184 274 275 354 396 614 631 771 1847 1848 2060

bsmAI (GTCTC): 1034 2235

bsmAI (GTCTC): 1034 2235

bsmFI (GGGACNNNNNNNNNNNNNN): 143 202 297 1141 1399 1986

bsoFI (GCNGC): 85 292 312 315 318 321 332 508 519 522 567 570 672 1235 1552 1756
2017 2024 2326 2329

bsp120I (GGGCCC): 533

bsp1286 (GDGCHC): 159 484 533 809 2152 2342

bspCNI (CTCAGNNNNNNNNN): 563 1050

GSeqEdit, DNA92234 [Full], page 17

```
bspEI (TCCGGA):         2366
bspHI (TCATGA):         1074
bspMI (ACCTGC):         2377
bspMII (TCCGGA):        2366
bsrFI (RCCGGY):         2371
bsrI (ACTGGN):          384 618 1542
bssKI (CCNGG):          139 360 528 609 684 813 882 995 996 1038 1113 1137 1144 1239 1342
                        1363 1602 1638 2061 2353 2354
bssSI (CTCGTG):         2155
bst4CI (ACNGT):         643 1354 1573
bstAPI (GCANNNNNTGC):   641
bstDSI (CCRYGG):        503 1516
bstF5I (GGATG):         405 606 857 1068 1203 1605 1844 1857 2175
bstNI (CCWGG):          528 609 813 882 1038 1113 1137 1144 1342 1363 1638 2061
bstUI (CGCG):           38 331 1329
bstXI (CCANNNNNNTGG):   260 1478
bstYI (RGATCY):         270 822 1609
btgI (CCRYGG):          503 1516
btrI (CACGTC):          667
btsI (GCAGTGNN):        1992
cac8I (GCNNGC):         31 35 303 675 868 975 2020 2381
cfoI (GCGC):            330 364 525 800 1328
cfr10I (RCCGGY):        2371
cfrI (YGGCCR):          437 500 611 657 1365 2327
cpoI (CGGWCCG):         2368
csp6I (GTAC):           41 387 1296 1897 2375 2387
cspI (CGGWCCG):         2368
ddeI (CTNAG):           563 1050 1265 1767
dpnI (GATC):            271 628 786 823 960 1090 1320 1566 1599 1610 1644 1812 1817 1937
                        2183
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GSeqEdit, DNA92234 [Full], page 18

```
dpnII(GATC):            271 628 786 823 960 1090 1320 1566 1599 1610 1644 1812 1817 1937
                        2183

draI(TTTAAA):           1914

draII(RGGNCCY):         532 558 768 1984 2142

draIII(CACNNNGTG):      642

dsaI(CCRYGG):           503 1516

dsaV(CCNGG):            139 360 528 609 684 813 882 995 996 1038 1113 1137 1144 1239 1342
                        1363 1602 1638 2061 2353 2354

eaeI(YGGCCR):           437 500 611 657 1365 2327

eagI(CGGCCG):           2327

earI(CTCTTCNNNN):       15 487 862 1100 1177

ecl136II(GAGCTC):       484 2342

eclXI(CGGCCG):          2327

eco57I(CTGAAG):         250 424 474 489 804

ecoNI(CCTNNNNNAGG):     396

ecoO109I(RGGNCCY):      532 558 768 1984 2142

ecoRI(GAATTC):          54

ecoRII(CCWGG):          528 609 813 882 1038 1113 1137 1144 1342 1363 1638 2061

ecoRV(GATATC):          1929

fnu4HI(GCNGC):          85 292 312 315 318 321 332 508 519 522 567 570 672 1235 1552 1755
                        2017 2024 2326 2329

fnuDII(CGCG):           38 331 1329

fokI(GGATG):            405 606 857 1068 1203 1605 1844 1857 2175

gsuI(CTGGAG):           96 258 325 814 883 1290

haeII(RGCGCY):          363 524 799

haeIII(GGCC):           438 501 534 543 612 658 769 1366 1776 2328

hgaI(GACGC):            295 420

hgiAI(GWGCWC):          484 2152 2342

hhaI(GCGC):             330 364 525 800 1328

hinPI(GCGC):            330 364 525 800 1328
```

hincII (GTYRAC):   2348

hindII (GTYRAC):   2348

hinfI (GANTC):   204 451 585 914 1120 1148 1275 1500 1829 2070 2407

hinlI (GRCGYC):   25

hpaII (CCGG):   139 361 684 996 1227 1239 1602 2128 2354 2367 2372

hphI (GGTGA):   3 181 346 1023 1434 1832

hpy188I (TCNGA):   51 79 252 476 491 582 806 946 1568 1809 1814

hpy188III (TCNNGA): 97 281 402 443 1051 1074 1209 1289 1446 1873 1933 2156 2366

hpy99I (CGWCG):   27 2347

hpyCH4III (ACNGT):   643 1354 1573

hpyCH4IV (ACGT):   26 43 149 668

hpyCH4V (TGCA):   34 416 521 671 1030 1283 1524 1995 2023 2051 2104 2380

kpnI (GGTACC):   1295 2374

ksp632I (CTCTTCNNNN): 15 487 862 1100 1177

maeI (CTAG):   243 1210 1216 1396 1504 1805 1849 1889 2140 2337

maeII (ACGT):   26 43 149 668

maeIII (GTNAC):   4 180 1435 2158

mboI (GATC):   271 628 786 823 960 1090 1320 1566 1599 1610 1644 1812 1817 1937
                     2183

mboII (GAAGA):   15 131 380 488 588 825 862 917 1101 1177 1219 1450

mcrI (CGRYCG):   755 2327

mfeI (CAATTG):   1622

mluI (ACGCGT):   37

mlyI (GAGTCNNNNN):   204 451 585 1120 1500 2407

mnlI (CCTC):   65 77 126 185 209 227 246 344 350 396 469 545 562 598 724 749 853
                     865 886 1021 1168 1180 1270 1287 1293 1324 1402 1738 1835 2005 2146

mroI (TCCGGA):   2366

mscI (TGGCCA):   437

mseI (TTAA):   175 1788 1915 1981 2220 2361

mslI (CAYNNNNRTG):   400 1405 1407

GSeqEdit, DNA92234 [Full], page 20

```
nspAII(CMGCKG):   568 1672
mspI(CCGG):       139 361 684 996 1227 1239 1602 2128 2354 2367 2372
munI(CAATTG):     1622
mvaI(CCWGG):      528 609 813 882 1038 1113 1137 1144 1342 1363 1638 2061
mvnI(CGCG):       38 331 1329
mwoI(GCNNNNNNNGC): 303 312 315 321 357 502 535 641 650 793 802 1555 1665
nciI(CCSGG):      139 360 684 995 996 1239 1602 2353 2354
ndeII(GATC):      271 628 786 823 960 1090 1320 1566 1599 1610 1644 1812 1817 1937
                  2183
nlaIII(CATG):     32 199 336 555 1014 1075 1315 1407 1497
nlaIV(GGNNCC):    270 532 533 558 640 705 991 1054 1140 1164 1295 1609 1741 1985 2374
notI(GCGGCCGC):   2326
nspBII(CMGCKG):   568 1672
nspHI(RCATGY):    31 335
nspI(RCATGY):     31 335
paeR7I(CTCGAG):   62
palI(GGCC):       438 501 534 543 612 658 769 1366 1776 2328
pflFI(GACNNNGTC): 451
pleI(GAGTCNNNN):  204 451 585 1120 1500 2407
ppuMI(RGGWCCY):   558 1984 2142
pshAI(GACNNNNGTC): 553
pspAI(CCCGGG):    995 2353
pspGI(CCWGG):     528 609 813 882 1038 1113 1137 1144 1342 1363 1638 2061
pspOMI(GGGCCC):   533
pstI(CTGCAG):     520 2379
pvuII(CAGCTG):    568
rcaI(TCATGA):     1074
rmaI(CTAG):       243 1210 1216 1396 1504 1805 1849 1889 2140 2337
rsaI(GTAC):       41 387 1296 1897 2375 2387
rsrII(CGGWCCG):   2368
```

sacI (GAGCTC): 484 2342

salI (GTCGAC): 2348

sapI (GCTCTTCNNNN): 15 486 1099

sau3AI (GATC): 271 628 786 823 960 1090 1320 1566 1599 1610 1644 1812 1817 1937
2183

sau96I (GGNCC): 533 534 559 705 769 909 1140 1776 1985 2143 2369

sbfI (CCTGCAGG): 2378

scrFI (CCNGG): 139 360 528 609 684 813 882 995 996 1038 1113 1137 1144 1239 1342
1363 1602 1638 2061 2353 2354

sfaNI (GCATC): 1067

sfcI (CTRYAG): 10 520 2379 2400

sfiI (GGCCNNNNNGGCC): 534

smaI (CCCGGG): 995 2353

smlI (CTYRAG): 62 2006 2147

snaBI (TACGTA): 42

speI (ACTAGT): 2336

sphI (GCATGC): 31

splI (CGTACG): 40

sse8387I (CCTGCAGG): 2378

sspI (AATATT): 1528 1949

sstI (GAGCTC): 484 2342

taiI (ACGT): 26 43 149 668

taqI (TCGA): 63 443 1259 1322 2349

tfiI (GAWTC): 914 1148 1275 1829 2070

thaI (CGCG): 38 331 1329

tliI (CTCGAG): 62

tru9I (TTAA): 175 1788 1915 1981 2220 2361

tseI (GCWGC): 292 312 315 318 321 508 519 522 567 570 672 1235 1552 1756 2017 2024

tsp45I (GTSAC): 4 180 1435 2158

tsp509I (AATT): 55 410 842 942 1250 1382 1623 1668 1748 1880 2107 2359 2363

GSeqEdit, DNA92234 [Full], page 22

tspRI (NNCAGTGNN):

tth111I (GACNNNGTC):   1574 1821 1992 2243

vspI (ATTAAT):   451

xbaI (TCTAGA):   1787 2219 2360

xhoI (CTCGAG):   1209

xhoII (RGATCY):   62

xmaI (CCCGGG):   270 822 1609

xmaIII (CGGCCG):   995 2353

xmnI (GAANNNNTTC):   2327

                           375 1159 1379 1469 2358

not found:

aclI (AACGTT),afeI (AGCGCT),aflII (CTTAAG),ahdI (GACNNNNNGTC),alw44I (GTGCAC),apaLI (GTGCAC),
avaIII (ATGCAT),aviII (TGCGCA),avrII (CCTAGG),baeI (NNNNNNNNNNNNNNNNNACNNNNGTAYCNNNNNNNNNNNN),bbrPI (CACGTG),
bcgI (NNNNNNNNNNNNCGANNNNNNTGCANNNNNNNNNN),bciVI (GTATCC),bclI (TGATCA),bfrBI (ATGCAT),bfrI (CTTAAG),blnI (CCTAGG),
blpI (GCTNAGC),bpu1102I (GCTNAGC),bsaBI (GATNNNNATC),bsaXI (NNNNNNNNNNNNNNNACNNNNNCTCCNNNNNNNNNNNN),bsiCI (TTCGAA),
bsmBI (CGTCTCNNNNN),bsmI (GAATGCN),bsp106 (ATCGAT),bsp1407I (TGTACA),bspCI (CGATCG),bspDI (ATCGAT),bsrBI (GAGCGG),
bsrDI (GCAATGNN),bsrGI (TGTACA),bssHII (GCGCGC),bst1107I (GTATAC),bstBI (TTCGAA),bstEII (GGTNACC),bstZ17I (GTATAC),
bsu36I (CCTNAGG),celII (GCTNAGC),claI (ATCGAT),drdI (GACNNNNNNGTC),eam1105I (GACNNNNNGTC),ecilI (GGCGGA),eco47III (AGCGCT),
eco72I (CACGTG),eco81I (CCTNAGG),eheI (GGCGCC),esp3I (CGTCTC),espI (GCTNAGC),fseI (GGCCGGCC),fspI (TGCGCA),hindIII (AAGCTT),
hpaI (GTTAAC),kasI (GGCGCC),kspI (CCGCGG),mamI (GATNNNNATC),mstII (CCTNAGG),naeI (GCCGGC),narI (GGCGCC),ncoI (CCATGG),
ndeI (CATATG),ngoMI (GCCGGC),nheI (GCTAGC),nruI (TCGCGA),nsiI (ATGCAT),paeI (TTAATTAA),pciI (ACATGT),pflMI (CCANNNNNTGG),
pmeI (GTTTAAAC),pmlI (CACGTG),ppu10I (ATGCAT),psiI (TTATAA),psp1406I (AACGTT),pvuI (CGATCG),sacII (CCGCGG),sandI (GGGWCCC),
sauI (CCTNAGG),scaI (AGTACT),sceI (TAGGGATAACAGGGTAAT),sexAI (ACCWGGT),sfuI (TTCGAA),sgfI (GCGATCGC),sgrAI (CRCCGGYG),
snoI (GTGCAC),srfI (GCCCGGGC),sstII (CCGCGG),stuI (AGGCCT),styI (CCWWGG),swaI (ATTTAAAT),
xcmI (CCANNNNNNNNNTGG)

EXHIBIT B

Additional Resources:

Find C: New C: Update

ASY [ ] 92 [ ]

ASY92

Field	Value
Assay Name	Mouse Messengial Cell proliferation Assay
Alias Name	Mu Hess Cell Prolif
Status	Retired
Class	Primary
Format	96 Well
Type	Cell
Sample Requirements	
Assay Volume	0.1 ml
Fold DR Into Well	10 Fold
Replicates	3
Dilutions	2
Volume Requested	0.03ml/well/conc
Protocol	
Species	Mouse
Purpose	Screen SPDI proteins which can stimulate Messengial Cell Proliferation

Protocol: On day 1: Mouse messengial cells are plated on a 96 well plate in Media[A 3:1 mixture of Dulbecco's modified Eagle's medium and Ham's F12 medium- 85%- fetal bovine serum-5%- supplemented with 14mM hepes] and grw overnight. On day 2: SPDI Proteins are diluted at 2 conc. [1%- 0.1%] in serum-free Media and added to the cells. On day 4: After 48 hours incubation- each well of the Cell Titer 96 Aqueous one solution reagent [Promega] and colormetric reaction was allowed for 2 hours. The absorbance [OD] is measured at 490 nm.

Field	Value
Matrix	Promega kit for the assay-
Result Calculation	replicated average
Result Interpretation	Any PIN that gives an absorbance reading which is 15% above the media control is considered a hit.
Result Cutoff	> 15 %
	In Vivo: InVitro:
Comments	
Status	
Date Entered	
Date Canceled	
Department	Endocrinology
Scientist	James [Guohua] Pan
Notebook	0-
Assayers	

Status   Retired

Cancel Reason

Source   Endocrinology

Lab Scientist   Weiguang Mao

ASY | DNA | DOM | EXP | FAM | FLS | LIB | LOT | MAP | OLI | RNA | PRO | PUR | RNA | SRC | UNQ | XPT | YST
Assay Viewer | Sequence Viewer | Gene Viewer | Gene Ontology | SAGE

GeneGenes Feedback

GenesXGenes

Additional Resources:

Assay Viewer

SPDX Assay

Find: ○ New ○ Update

SELECT

ASY1 Heart Neonatal Hypertrophy
ASY2 Heart Adult Hypertrophy
ASY3 Adipocyte Lipolysis
ASY4 Adipocyte Lipogenesis
ASY5 Hematopoietic stem cell proliferation
ASY6 Hippocampal Neuron Survival
ASY7 Retinal Neuron Survival (5-8 days cultur
ASY8 Endothelial cell protection
ASY9 Inhibition of VEGF stimulated endothelia
ASY10 Eosinophil degranulation (induction of
ASY11 B cell IgE synthesis inhibition

Find Lots

All PIN
All DNA

Show Lots for:
PIN
Number:
1205
□ Include UNQ Related Lots

Lots for Search

PIN1205-1

☑ All Positives ☐ Verified Positives ☐ Pending

Date Complete From _____ To _____

Rows 1 - 2 of 2

Page 1 of 1

ASY	ASY Name	PUR/EXP/DNA	LOT	LOT Name	Pos	Verified	Mann	Conc	Conc Unit	Cell	UNQ	Protein Name
ASY92	Mu Mass Cell Prolif	PUR1715	LOT2447	PIN1205-1			1	0.10	%		UNQ1915	Human DPKL1915 IgG
ASY92	Mu Mass Cell Prolif	PUR1715	LOT2447	PIN1205-1			1	1.00	%		UNQ1916	Human DPKL1916 IgG

ASSAY RESULT LIST

ASY | DNA | DOM | EXP | EXM | BLS | UB | LOT | MAP | OLI | ERR | PRO | PUR | RNA | SRC | UNQ | XET | YST
Assay Viewer | Sequence Viewer | Gene Viewer | GenesXGenes | SAGE

Select Page Page No. 1

Date Distr	Date Complete

Send Genes Feedback

Scomreant